Fig. 1

```
AGAGAAAGAAGGGGCTTTAGGCATTCACACTTATCGGTAAACTGAAAAGA  -50
::::::::::::::::::::::::::::::::::::::::::::::::::::
AGAGAAAGAAGGGGCTTTAGGCATTCACACTTATCGGTAAACTGAAAAGA  -50

TGCGGAAGAAGCTTGAGTGAAGGCAAGGTTCGCTTAAGAAGGGAAACCGG  -100
::::::::::::::::::::::::::::::::::::::::::::::::::::
TGCGGAAGAAGCTTGAGTGAAGGCAAGGTTCGCTTAAGAAGGGAAACCGG  -100

GTTTGTAGCTCAGCTGGTTAGAGCACACGCTTGATAAGCGTGAGGTCGGA  -150
:::::::::::::::::::::::::::::::::::::::::::::  :::::::
GTTTGTAGCTCAGCTGGTTAGAGCACACGCTTGATAAGCGTGGGGTCGGA  -150

GGTTCAAGTCCTCCCAGACCCACCAAGAACGGGGGCATAGCTCAGTTGGT  -200
::::::::::::::::::::::::::::::::::::::::::::::::::::
GGTTCAAGTCCTCCCAGACCCACCAAGAACGGGGGCATAGCTCAGTTGGT  -200

AGAGCACCTGCTTTGCAAGCAGGGGGTCATCGGTTCGATCCCGTTTGCCT  -250
::::::::::::::::::::::::::::::::::::::::::::::::::::
AGAGCACCTGCTTTGCAAGCAGGGGGTCATCGGTTCGATCCCGTTTGCCT  -250

CCACCAAAACTTTACAAATGAAAGCAAGTTTGCTGTTTTTAGCAGCTTAT  -300
::::::::::::::::::::::::::::::::::::::::::::::::::::
CCACCAAAACTTTACAAATGAAAGCAAGTTTGCTGTTTTTAGCAGCTTAT  -300

TTTGATTTGCGAAGTAGAATAACGACGCATCGATC
:::::::::::::::::::::::::::::::::::::
TTTGATTTGCGAAGTAGAATAACGACGCATCGATC
```

Inventor: ROSSAU ET AL.
Docket No.: 12546.2USC4
Title: HYBRIDIZATION PROBES DERIVED FROM THE SPACER REGION BETWEEN
THE 16S AND 23S rRNA GENES FOR THE DETECTION OF NON-VIRAL
MICROORGANISMS
Attorney Name: REBECCA A. BORTOLOTTI
Phone No.: 612.766.6045
Sheet 2 of 10

Fig. 2

```
AAGAGCTTGAGTGCTCGTGTCAAGTGTCCACGCTTATCGGTTGTTGTTAT -50
::::::::::::::::::::::::::::::::::::::::::::::::::::
AAGAGCTTGAGTGCTCGTGTCAAGTGTCCACGCTTATCGGTTGTTGTTAT -50

ATAGCTGCTGGATCGGTGGCTGCTGATCCGAGAGAGAAAGGTTTCGCGGG -100
::::::::::::::::::::::::::::::::::::::::::::::::::::
ATAGCTGCTGGATCGGTGGCTGCTGATCCGAGAGAGAAAGGTTTCGCGGG -100

TCTGTAGCTCAGTCGGTTAGAGCACCGTCTTGATAAGGCGGGGGTCGTTG -150
::::::::::::::::::::::::::::::::::::::::::::::::::::
TCTGTAGCTCAGTCGGTTAGAGCACCGTCTTGATAAGGCGGGGGTCGTTG -150

GTTCGAATCCAACCAGACCCACCAAGGTTTCCTGAGAGGGAAATGGGGGT -200
::::::::::::::::::::::::::::::::::::::::::::::::::::
GTTCGAATCCAACCAGACCCACCAAGGTTTCCTGAGAGGGAAATGGGGGT -200

GTAGCTCAGCTGGGAGAGCGCCTGCTTTGCAAGCAGGATGTCATCGGTTC -250
::::::::::::::::::::::::::::::::::::::::::::::::::::
GTAGCTCAGCTGGGAGAGCGCCTGCTTTGCAAGCAGGATGTCATCGGTTC -250

GATCCCGTTCACCTCCACCAAAGCCTGTCCAGAGGATGGGTGTGGNNNG- -299
::::::::::::::::::::::   ::::  :::     ::  ::::::  : ::      :
GATCCCGTTCACCTCCACCAGAGCCCGTCTTGAAGATGGGAGCGGGTTGG -300

------AGACCAG-AAGGCGAGAGAGCAACGTTAGTGCTGCGAGTCAGTG -342
       :::::::  ::::::::::::::::::::::::::::::::::::::
CAGGCGAGACCAGGAAGGCGAGAGAGCAACGTTAGTGCTGCGAGTCAGTG -350

TTAAGCGTTGGGTTTTGGCCGACAGCTATATATGTTCTTTAACAATTTGG -392
::::::::::::::::::::::::::::::::::::::::::::::::::::
TTAAGCGTTGGGTTTTGGCCGACAGCTATATATGTTCTTTAACAATTTGG -400

AAGAAGCACAACGTAAAGTGTTCGTTTAGTAGTCGGCGCGAGTCGATGAA -442
::::::::::::::::::::::::::::::::::::::::  ::::::::::::::
AAGAAGCACAACGTAAAGTGTTCGTTTAGTAGTCGACGCGAGTCGATGAA -450

GACGGATACGGGTTGTGATTGCATGATTTTGTTCCAAGTCTCAAGAACTG -492
::::::::::::::::::::::::::::::::::::::::::::::::::::
GACGGATACGGGTTGTGATTGCATGATTTTGTTCCAAGTCTCAAGAACTG -500

GCTGGGCGGCCAAGCGTTTGGTCAGATGCTTTGAACTTATGAACGGCACA -542
::::::::::::::::::::::::::::::::::::::::::::::::::::
GCTGGGCGGCCAAGCGTTTGGTCAGATGCTTTGAACTTATGAACGGCACA -550

AGCGCGAATGAACAGCACCTATAAGACTTTAGTGTTATAG -582
::::::::::::::::::::::::::::::::::::::::::
AGCGCGAATGAACAGCACCTATAAGACTTTAGTGTTATAG -590
```

:   Inventor: ROSSAU ET AL.
Docket No.: 12546.2USC4
Title: HYBRIDIZATION PROBES DERIVED FROM THE SPACER REGION BETWEEN
THE 16S AND 23S rRNA GENES FOR THE DETECTION OF NON-VIRAL
MICROORGANISMS
Attorney Name: REBECCA A. BORTOLOTTI
Phone No.: 612.766.6045
Sheet 3 of 10

Fig. 3

```
AGAGAAAGAAGAGGCTTTAGGCATTCACACTTATCGGTAAACTGAAAAAG -50
:::::::::::  ::::::::::::::::::::::::::::::::::::: :
AGAGAAAGAAGGGGCTTTAGGCATTCACACTTATCGGTAAACTGAAAA-G -49

ATGCGGAAGAAGCTTGAGTGAAGGCAAGATTCGCTTAAGAAGAGAATCCG -100
::::::::::::::::::::::::::::::  ::::::::::::: ::: :::
ATGCGGAAGAAGCTTGAGTGAAGGCAAGGTTCGCTTAAGAAGGGAAACCG -99

GGTTTGTAGCTCAGCTGGTTAGAGCACACGCTTGATAAGCGTGGGGTCGG -150
:::::::::::::::::::::::::::::::::::::::::::::: ::::::
GGTTTGTAGCTCAGCTGGTTAGAGCACACGCTTGATAAGCGTGAGGTCGG -149

AGGTTCAAGTCCTCCCAGACCCACCAAGAACGGGGGGCATAGCTCAGTTG -200
:::::::::::::::::::::::::::::::::::::::: ::::::::::::
AGGTTCAAGTCCTCCCAGACCCACCAAGAACGGGGG-CATAGCTCAGTTG -198

GTAGAGCACCTGCTTTGCAAGCAGGGGGTCATCGGTTCGATCCCGTTTGC -250
::::::::::::::::::::::::::::::::::::::::::::::::::::
GTAGAGCACCTGCTTTGCAAGCAGGGGGTCATCGGTTCGATCCCGTTTGC -248

CTCCACCAATACTGTACAAATCAAAACGGAAGAATGGAACAGAATCCATT -300
:::::::::: ::: ::::::: ::: :  :::                ::
CTCCACCAAAACTTTACAAATGAAAGC--AAG---------------TT -280

CAGGGCGACGTCACACTTGACCAAGAACAAAATGCTGATATAATAATCAG -350
                            :::::: : : :    :::
----------------------------------TGCTGTTTTTAG---CAG -295

CTCGTTTTGATTTGCACAGTAGATAGCAATATCGAACGCATCGATCTTTA -400
::   :::::::::::  ::::::       ::: :::  ::::::::::::
CTTATTTTGATTTGCGAAGTAGA-----ATAACGA-CGCATCGATCTTTA -339

ACAAATTGGAAAGCCGAAATCAACAAACAAAGACAAAGCGTTTGTTTTGA -450
:::::::::::::::::::::::::::::::::::::::: : :::::::::::
ACAAATTGGAAAGCCGAAATCAACAAACAAAGACAATGAGTTTGTTTTGA -389

TTTTTTATTCTTTGCAAAGGATAAAAAATCGCTCACAAGAGAAAGAAAA -500
:: ::::::::::::::::::::::::::::::: ::: ::::::::::::::
TTTTTTATTCTTTGCAAAGGATAAAAAATCTCTCGCAAGAGAAAGAAAA -439

CAAACACAGTATTTGGGTGATGATTGTATCGACTTAACCCTGAAACACAA -550
:::::::  :::::::::::::::::::::::::::::::::: :::::::::::
CAAACATAGTATTTGGGTGATGATTGTATCGACTTAATCCTGAAACACAA -489

AAGGCAGGATTAAGACACAACAAAGCAGTAAGCTTTATCAAAGTAGGAAA -600
:::::::::::::::::::::::::::::::::::::::::::::::::::: :
AAGGCAGGATTAAGACACAACAAAGCAGTAAGCTTTATCAAAGTAGGGAT -539

TTCAAGTCTGATGTTCTAGTCAACGGAATGTTAGGCAAAGTCAAAGAAGT -650
::::::: :: :       ::::::::::   : ::  : :::::::::::::
TTCAAGTTTGCTTACTTAGTCAACGGGTAGGTAAACGAAGTCAAAGAAGT -589

TCTTGAAATGATAG -664
::::::::::::::
TCTTGAAATGATAG -603
```

Inventor: ROSSAU ET AL.
Docket No.: 12546.2USC4
Title: HYBRIDIZATION PROBES DERIVED FROM THE SPACER REGION BETWEEN
THE 16S AND 23S rRNA GENES FOR THE DETECTION OF NON-VIRAL
MICROORGANISMS
Attorney Name: REBECCA A. BORTOLOTTI
Phone No.: 612.766.6045
Sheet 4 of 10

Fig. 4

```
A-GAGAAAGAAGGGGCTTT--AGGCATTCACACTTATCGGTAAACTGAAA  -47
: ::: :: : : : : : : ::: ::::::::::: ::
AAGAGCTTGAGTGCTCGTGTCAAGTGTCCACGCTTATCGGT----TGTTG  -46

AGATGCGGAAGAAGCTTGAGTGAAGGCAAGGTTCGCTTAAGAAGGGAAAC  -97
  :: : : : : ::: :: : : :: ::::: ::  :
TTATATAGCTGCTGGATCGGTGGCTGCT-GATCCGAGAGAGAAAGGTTTC  -95

-CGGGTTTGTAGCTCAGCTGGTTAGAGCACACGCTTGATAAGCGTGAGGT  -146
 :::::: :::::::::::  :::::::::::::  ::::::::::  : :::
GCGGGTCTGTAGCTCAGTCGGTTAGAGCACCGTCTTGATAAGGCGGGGGT  -145

CGGAGGTTCAAGTCCTCCCAGACCCACCAAG---------------AACG  -181
 :: ::::: : ::: :::::::::::::::::               :: :
CGTTGGTTCGAATCCAACCAGACCCACCAAGGTTTCCTGAGAGGGAAATG  -195

GGGGCATAGCTCAGTTGGTAGAGCACCTGCTTTGCAAGCAGGGGGTCATC  -231
:::: ::::::::: ::: ::::: :::::::::::::::::: ::::::
GGGGTGTAGCTCAGCTGGGAGAGCGCCTGCTTTGCAAGCAGGATGTCATC  -245

GGTTCGATCCCGTTTGCCTCCACCAAAACTTTACAAATGAAAGCAAGTTT  -281
:::::::::::::::: :::::::::::: : : : : : : : ::
GGTTCGATCCCGTTCACCTCCACCAAAGCCTGTCCAGAGGATGGGTGTGG  -295

GCTGTTTTTAGCAGCTTATTTTGATTTGCGAAGTAGAATAACGACGCATC  -331
   :   :: ::  :     ::    :: : ::   :   : ::   ::
NNNGAGACCAGAAGGCGAGA--GA---GCAACGTT--AGTGCTGCGAGTC  -338

GATCTTTAACAAATTGGAAAGCCGAAATCAACAAACAAAGACAATGAGTT  -381
  : :: : : :::: :       : ::: : : : : :::
AGTGTTAAGCG--TTGG---GTTTTGGCCGACAGCTATATA---T--GTT  -378

TGTTTTGATTTTTTATTCTTTGCAAAGGATAAAAAATC-TCTCGCAAGAG  -430
 ::  : ::: :       ::: : : ::   :: : : : :    :
CTTTAACAATTTGGAAGAAGCACAACGTA-AAGTGTTCGTTTAGTAGTCG  -427

AAAAGAAAACAAACATA-GTATTTGGGTGATGATTGTATCGACTTAATCC  -479
    ::   :   : : : ::  ::::  ::::::: :: :: ::   : :
GCGCGAGTCGATGAAGACGGATACGGGTTGTGATTGCAT-GATTTGTTC  -476

TGAAACACAAAAGGCAGGATTAAGACACAACAAAGCAGTAAGCTTTATCA  -529
  :  : :::: :  : : ::  :    :  : :::: ::   ::  :::
CAAGTCTCAAGAA-CTGGCTGG-G---CGGCCAAGC-GT----TTGGTCA  -516

AAGTAGGGATTTCAAGTTTGCTTACTTAGTCAA-CGGGTAGGTAAACGAA  -578
 :  :   : ::: :: ::    : :        ::: :: : : : : :  :
GA-T---GCTTTGAACTTA--TGAACGGCACAAGCGCGAATGAACAGCAC  -560

GTCAAAGAAGTTCTTGAAATGATAG  -603
  :  ::::  ::  ::    :  ::::
CTATAAGACTTTAGTG---TTATAG  -582
```

Inventor: ROSSAU ET AL.
Docket No.: 12546.2USC4
Title: HYBRIDIZATION PROBES DERIVED FROM THE SPACER REGION BETWEEN
THE 16S AND 23S rRNA GENES FOR THE DETECTION OF NON-VIRAL
MICROORGANISMS
Attorney Name: REBECCA A. BORTOLOTTI
Phone No.: 612.766.6045
Sheet 5 of 10

Fig. 5

```
AC-----GAAG----TT-----AT-----CTGATTGGCAA---GAA----- -24
 :      ::::    ::     ::      :: :: :: ::   :::
AGAGAAAGAAGGGGCTTTAGGCATTCACACTTATCGGTAAACTGAAAAGA -50

TCCACAACAAG-TTGTTCTTTGGTAAGAT--GTTTAA------AAAC-GG -64
 : :  ::  ::: :::    :: ::: :  : ::::      :::: ::
TGCGGAAGAAGCTTGAGTGAAGGCAAGGTTCGCTTAAGAAGGGAAACCGG -100

GTCTATAGCTCAGTTGGTTAGAGCACCGTGTTGATAACGCGGG-GGTCAT -113
 :: :  ::::::::: ::::::::::::     :::::::: ::: : ::::
GTTTGTAGCTCAGCTGGTTAGAGCACACGCTTGATAA-GCGTGAGGTCGG -149

AAGTTCAAGTCTTATTAGACCCACCATTTT-GGGGCCATAGCTCAGTTGG -162
 : ::::::::: :    :::::::::::    :::: :::::::::::::
AGGTTCAAGTCCTCCCAGACCCACCAAGAACGGGGGCATAGCTCAGTTGG -199

TAGAGCGCCTGCCTTGCACGCAGGAGGTCAGGAGTTCGACTCTCCTTGGC -212
 :::::: ::::: ::::: ::::: :::::      ::::::  :  ::: :
TAGAGCACCTGCTTTGCAAGCAGGGGGTCATCGGTTCGATCCCGTTTGCC -249

TCCACCAAGCAAGTTTAAACATCAAAGCATACATAAGCAATTAAATAAG -262
 ::::::::  ::  ::::  :  :: :::::::   :   ::  ::: : ::
TCCACCAA--AACTTTACAAATGAAAGCAAG--TTTGCTGTTTTAGCAG -295

ATTTCTTATTTATGCTTT-TATTTTATAAACTGA-CGAAGTTATAACAT -310
 ::  ::    : :::    ::     ::    ::   : :::  :::: : ::
CTTATTTTGATTTGCGAAGTAGAATAACGACGCATCGATCTTTAACAAAT -345

T-----------ATTTAACAA-CATAGT--ATGAGTCTGGGTAATTATTT -347
 :           : : :::::: :: ::     :::::: ::  :: ::: :::
TGGAAAGCCGAAATCAACAAACAAAGACAATGAGTTTGTTTTGATTTTTT -395

AAT---TCCAACAAATAATTAACCTGGTGTTTGT--ACCCAATACAAACA -392
 : :   : ::: :::: :: ::   :   :   :   :: :::::::
ATTCTTTGCAAAGGATAAAAAATCTCTCGCAAGAGAAAAGAAACAAACA -445

CCAAA-----------AAAGTAAAGAG--AA--CTGAATCAA-----GC- -421
  :                :  ::: ::    ::    ::::: ::        ::
TAGTATTTGGGTGATGATTGTATCGACTTAATCCTGAAACACAAAGGCA -495

GTA---------AACATAGGTG-AATCGTTA-CACATTACCCATA-CAC- -458
 : :         :::: ::   : :: : :::  :: : ::     :: ::
GGATTAAGACACAACAAAGCAGTAAGCTTTATCAAAGTAGGGATTTCAAG -545

-------AC-----CAAAGACTTCCTA---GAAGTCAGACTA---CTTGG -490
       ::      ::: :  :    ::    :::::::: :  :   ::::
TTTGCTTACTTAGTCAACGGGTAGGTAAACGAAGTCAAAGAAGTTCTTGA -595

GGTTGTAT -498
 :   ::
AATGATAG -603
```

Inventor: ROSSAU ET AL.
Docket No.: 12546.2USC4
Title: HYBRIDIZATION PROBES DERIVED FROM THE SPACER REGION BETWEEN
THE 16S AND 23S rRNA GENES FOR THE DETECTION OF NON-VIRAL
MICROORGANISMS
Attorney Name: REBECCA A. BORTOLOTTI
Phone No.: 612.766.6045
Sheet 6 of 10

Fig. 6

```
C---------------------------------------------------- -1
:
CTTAACCTTCGGGAGGGCGCTTACCACTTTGTGATTCATGACTGGGGTGA -50


--------CAAAATAA----AG----AC-----------ATCAC------- -18
        ::: ::: :: :: :::::
AGTCGTAACAAGGTAACCGTAGGGGAACCTGCGGTTGGATCACCTCCTTA -100


-----AAGTA---------------CTCACACAGATTGTTTGATTGTTTT -48
    ::: : :::::::::::::::: :::: :
CCTTAAAGAAGCGTACTTTGTAGTGCTCACACAGATTGTCTGATAGAAAG -150


AGA----CAAGTCG------------------------GAATA---- -63
  :: ::::: :: :::::
TGAAAAGCAAGGCGTTTACGCGTTGGGAGTGAGGCTGAAGAGAATAAGGC -200


CAT---CTTT--------------------------AAATGT------- -76
: : :::: :::: :
CGTTCGCTTTCTATTAATGAAAGCTCACCCTACACGAAAATATCACGCAA -250


-------------------TGTCCCCATCTGTCTAGAGGCCTAGGACAT -106
                   :::::::: :: ::::::::::: ::::::
CGCGTGATAAGCAATTTTCGTGTCCCCTTC-GTCTAGAGGCCCAGGACAC -299


CGCCCTTTCACGGCGGTAACCGGGGTTCGAANCCCC--GTGGACGCCATC -154
:::::::::::::::::::: ::::::::::: :::: : ::::::::: :
CGCCCTTTCACGGCGGTAACAGGGGTTCGAATCCCCTAGGGGACGCCA-C -348


TAAAGATGATTTTT-ATTGTCTTATGTT--CTTTAAAAAAATAGAAACAA -201
: : :: ::: : : :: : : :::: : : :: :
TT--GCTGGTTTGTGAGTGAAAGTCGCCGACCTTAATATCTCAAAACTCA -396


GCT----GAAAACTGAGAGATTTTCTAAAGTAGAAAGTCTGAGT-AATCT -246
:: : : : ::::: :: : ::: :::: : :: ::
TCTTCGGGTGATGTTTGAGATNTTTGCTCTTTAAAAATCTGGATCAAGCT -446


AAAATCTTAG---CTGAACAAAAGCAGCTAAGTGTTTAGTCTAAATCATT -293
::: : : ::::::::: :: : :: ::::: :::
GAAAATTGAAACACTGAACAACGAGAGTTGTTCGTG-AGTCTCTCAAATT -495


AACCACAAGTATATCAATATGCCTCGCGCATAATAAAATACTTGAGGTTG -343
: ::: :: ::: ::: :: ::: ::: :::::
TTCG-CAACACGAT---GATGAATCGA----AAGAAACATCTTCGGGTTG -537


TAT -346
:
TGA -540.
```

Inventor: ROSSAU ET AL.
Docket No.: 12546.2USC4
Title: HYBRIDIZATION PROBES DERIVED FROM THE SPACER REGION BETWEEN
THE 16S AND 23S rRNA GENES FOR THE DETECTION OF NON-VIRAL
MICROORGANISMS
Attorney Name: REBECCA A. BORTOLOTTI
Phone No.: 612.766.6045
Sheet 7 of 10

Fig. 7

```
ACGAAGTTATCTGATTGGCAAGAATCCACAACAAGTTGTTCTTTGGTAAG -50
:::: :::::::::::::::::::::::::::::::::::: : ::
ACGAGATTATCTGATTGGCAAGAATCCACAACAAGTTGTTCTTAG-TAGT -49

ATGTTTAAAAACGGGTCTATAGCTCAGTTGGTTAGAGCACCGTGTTGATA -100
: : ::: :::::::::::::::::::::::::::::::::: ::::::
GTAAGTTAAATTGGGTCTATAGCTCAGTTGGTTAGAGCACCGCCTTGATA -99

ACGCGGGGGTCATAAGTTCAAGTCTTATTAGACCCACCATTTTGGGGCCA -150
: :::::::::::::::::::::::::::::::::::::::::::::::: :
AGGCGGGGGTCATAAGTTCAAGTCTTATTAGACCCACCATTTTGGGGTTA -149

TAGCTCAGTTGGTAGAGCGCCTGCCTTGCACGCAGGAGGTCAGGAGTTCG -200
::::::::::::::::::::::::::::::::::::::::::::::::::::
TAGCTCAGTTGGTAGAGCGCCTGCCTTGCACGCAGGAGGTCAGGAGTTCG -199

ACTCTCCTTGGCTCCACCAAGCAAGTTTAA--ACATCAAAGCATACATAA -248
:::::::::: ::::::::: : : :: : : ::::: :: :
ACTCTCCTTAACTCCACCACTTACAATAAATGAGAACTAAGCAATCAAAT -249

GCAAT----TTAAATAAGATTTCTTATTTATGCTTT---TATTTTA--TA -289
:: : :::: :::::::::: :: : :::: :: : : ::
TAGATAACATAAAATTAGATTTCTTACTTCTACTTTATGTAGATGACTTA -299

-----AACTGACGAAGTTTATAACA-TTATTTAACAACATAG-TATGAGT -332
:::::: :::::: :: :: ::::::::::: :: :::::::
CAATTAACTGATGAAGTTAATTTCAATTATTTAACAACGTATATATGAGT -349

CTGGGTTAATTATTTAATTCCAACAAATAATTAACCTGGTGTTTGTAC-C -381
::::::::::::::::::::::::::::::::::::::: : ::: :
CTGGGTTAATTATTTAATTCCAACAAATAATTAACCATTCCGTCATACTC -399

CA--------ATACAAACACCAAA-----------------------A -398
:: ::: ::: ::: :
CACATCAAGCATATAAAGTTAAAACTTTTAGTATTGATGATGATCGGATA -449

AAGTAAAGAGAACTGAATCAAGCGTAAACATAGGTGAATCGTTACACATT -448
::::::::::::::::::::::::::::::::::::::::::::::::::::
AAGTAAAGAGAACTGAATCAAGCGTAAACATAGGTGAATCGTTACACATT -499

ACCCATACACACCAAAGACTTCCTAGAAGTCAGACTACTTGGGGTTGTAT -498
::::::::::::::::::::::::::::::::::::::::::::::::::::
ACCCATACACACCAAAGACTTCCTAGAAGTCAGACTACTTGGGGTTGTAT -549
```

Inventor: ROSSAU ET AL.
Docket No.: 12546.2USC4
Title: HYBRIDIZATION PROBES DERIVED FROM THE SPACER REGION BETWEEN
THE 16S AND 23S rRNA GENES FOR THE DETECTION OF NON-VIRAL
MICROORGANISMS
Attorney Name: REBECCA A. BORTOLOTTI
Phone No.: 612.766.6045
Sheet 8 of 10

Fig. 8

```
CTGAAGACGAGAGACAGCGAGTGCTCACACAGATTGGCTGATAGTTGTAG -50
:  ::::::::::::::::::::::::::::::::::::::::::::::::::
CCCAAGACGAGAGACAGCGAGTGCTCACACAGATTGGCTGATAGTTGTAG -50

ACAAGATTAAAAACGAAGCGAAAGCAACGTTGAAAAATAAACGTTAAAAG -100
::::::::::::::::::::::::::::::::::::::::::::::::::::
ACAAGATTAAAAACGAAGCGAAAGCAACGTTGAAAAATAAACGTTAAAAG -100

ATAAAAAGAAAATAGAGTATCTTTAATTGATGTCCCCATCGTCTAGAGGC -150
::::::::::::::::::::::::::::::::::::::::::::::::::::
ATAAAAAGAAAATAGAGTATCTTTAATTGATGTCCCCATCGTCTAGAGGC -150

CTAGGACATCGCCCTTTCACGGCGGTAACCGGGGTTCGAATCCCCGTGGG -200
::::::::::::::::::::::::::::::::::::::::::::::::::::
CTAGGACATCGCCCTTTCACGGCGGTAACCGGGGTTCGAATCCCCGTGGG -200

ACGCCAATTAAAGATAACTTTATTAGATTGTCTTACTGTTCTTTAAATTT -250
::::::              :::::::::::::::::::::::::::::::
ACGCCANNNNNNNNNNNNNNTTTATTAGATTGTCTTACTGTTCTTTAAAAAA -250

TTGGAAACAAGCTGAAAACAAGAGATTTTCGAGAGAAAGTCTGAGTAGGC -300
::::::::::::::::::::::::::::::::::::::::::::::::::::
TTGGAAACAAGCTGAAAACAAGAGATTTTCGAGAGAAAGTCTGAGTAGGC -300

AAGATAGGAAAGTGAGAGGAGGGAACTGAAAAGGGAACTCTAAAAACAAA -350
::::  ::::::::::: : :::::::::::: :::: :::::::::::::
AAGACAGGAAAGTGAAAAGAGGGAACTGAGAAGGAAACTCTAAAAACAAA -350

ACCTGTTTTGCATAAAA-TCTTGATTGAACAAAAGCAATCAAGTGTTTAG -399
 ::::::::: : :::: ::::::::::::::::::: :::::::::::::
-CCTGTTTTGTAAAAAAATCTTGATTGAACAAAAGTAATCAAGTGTTTAG -399

TTGAATGAAAATACGCATCAAATTGACCGCACTTTGAAGTGAAAACTTAA -449
:::::: ::  :  : ::: ::      ::    :   ::     : :: :
TTGAATTAA--TGAGGCTGAAAGTGCAGTCAAAGTACGGTATCTATTTTA -447

-AGTGA---TTGAAAACATTTGAGGTGAT -474
 :  :::     :::::::::::::::::
TATTGAGTTTTGAAAACATTTGANNNNNN -476
```

Inventor: ROSSAU ET AL.
Docket No.: 12546.2USC4
Title: HYBRIDIZATION PROBES DERIVED FROM THE SPACER REGION BETWEEN
THE 16S AND 23S rRNA GENES FOR THE DETECTION OF NON-VIRAL
MICROORGANISMS
Attorney Name: REBECCA A. BORTOLOTTI
Phone No.: 612.766.6045
Sheet 9 of 10

Fig. 9

```
AAGGATAAGGAA--CTGCGCATTG-GTCTTGTTTAGTCTTGAGAGGTCTT -47
:::::::::::::  ::::    :::  ::::::::::::: ::::::::::::::
AAGGATAAGGAAACCTGCCATTTGCGTCTTGTTTAGTTTTGAGAGGTCTT -50

GTGGGGCCTTAGCTCAGCTGGGAGAGCGCCTGCTTTGCACGCAGGAGGTC -97
:::::::::::::::::::::::::::::::::::::::::::::::::::::::
GTGGGGCCTTAGCTCAGCTGGGAGAGCGCCTGCTTTGCACGCAGGAGGTC -100

AGCGGTTCGATCCCGCTAGGCTCCATTGGTGAGAGATCACCAAGTAATGC -147
:::::::::::::::::::::::::::::::::   :: :    ::: :   ::
AGCGGTTCGATCCCGCTAGGCTCCATTGAATCGAAAGGTTCAAAT--TGT -148

ACATTGAAAATTGAATATCTATATCAAAT------------------------ -176
   :::::::::::::::::::::::::::::::::
TCATTGAAAATTGAATATCTATATCAAATTCCACGATCTAGAAATAGATT -198

------AGTAACAAGAAAATAAACCGAAAACGCTGT-AGTATT-AATAAG -218
      ::::::::::::::::::::::::::::::::::::: : :::: ::: ::
GTAGAAAGTAACAAGAAAATAAACCGAAAACGCTGTGAATATTTAATGAG -248

AGTTTATGACTGAAAGG---TCAGAAAATAA -246
  ::    :   :  ::::    :   :   :::::
TTTTCTAGTTTTAAAGAAACTAGGTTAATAA -279
```

Inventor: ROSSAU ET AL.
Docket No.: 12546.2USC4
Title: HYBRIDIZATION PROBES DERIVED FROM THE SPACER REGION BETWEEN
THE 16S AND 23S rRNA GENES FOR THE DETECTION OF NON-VIRAL
MICROORGANISMS
Attorney Name: REBECCA A. BORTOLOTTI
Phone No.: 612.766.6045
Sheet 10 of 10

Fig. 10

```
TAAAATCTAAAGCAAGTATATAAAGTAGATTAAATATAAAATACAAACTC  -50
::::::::::::::::::::::::::::::::::::::::::::::::::::
TAAAATCTAAAGCAAGTATATAAAGTAGATTAAATATAAAATACAAACTC  -50

TATACTTAGATTTATTTTTATCTTTAACTATAAAAGAATATACTTTAATA  -100
::::::::::::::::::::::::::::::::::::::::::::::::::::
TATACTTAGATTTATTTTTATCTTTAACTATAAAAGAATATACTTTAATA  -100

AATATAAATAACATATACATTATGTATTTATATTTATAATGAGATTATTT  -150
::::::::::::::::::::::::::::::::::::::::::::::::::::
AATATAAATAACATATACATTATGTATTTATATTTATAATGAGATTATTT  -150

AATATATATGCTTCCTTTAGGTTTTAAACCTAAATGTTCTTTTTAATTAT  -200
::::::::::::::::::::::::::::::::::::::::::::::::::::
AATATATATGCTTCCTTTAGGTTTTAAACCTAAATGTTCTTTTTAATTAT  -200

CATTGTTAAGAGTCACAAGCAAGTTTTAATAAAAACAATTTTACAGGACT  -250
::::::::::::::::::::::::::::::::::::::::::::::::::::
CATTGTTAAGAGTCACAAGCAAGTTTTAATAAAAACAATTTTACAGGACT  -250

TGTTAAAGGATAAAACCTATTTATCTTTTCTTTGGTTTAACTTATATCTT  -300
::::::::::::::::::::::::::::::::::::::::::::::::::::
TGTTAAAGGATAAAACCTATTTATCTTTTCTTTGGTTTAACTTATATCTT  -300

TTAATTATCTTTATTTCTATAATAAAGAGAATATTAGATTTAAGATTTAT  -350
::::::::::::::::::::::::::::::::::::::::::::::::::::
TTAATTATCTTTATTTCTATAATAAAGAGAATATTAGATTTAAGATTTAT  -350

AAATTAAAGACAAGTTTCAAACTCACAGCTTAGTTGAGACTAAATCATTT  -400
::::::::::::::::::::::::::::::::::::::::::::::::::::
AAATTAAAGACAAGTTTCAAACTCACAGCTTAGTTGAGACTAAATCATTT  -400

AGTTTTATATTAAGTGTTTGAATGCTTTCCGTCTTAAGATAAAGAAGTCT  -450
::::::::::::::::::::::::::::::::::::::::::::::::::::
AGTTTTATATTAAGTGTTTGAATGCTTTCCGTCTTAAGATAAAGAAGTCT  -450

TATCATAAAAACTTTAACAAGGAAGTGATGCGTTTTAGAATCAATAATAA  -500
::::::::::::::::::::::::::::::::::::::::::::::::::::
TATCATAAAAACTTTAACAAGGAAGTGATGCGTTTTAGAATCAATAATAA  -500

AAGGTAAAAAA  -511
:::::::::::
AAGGTAAAAAA  -511
```